

Climate Change Planning Assessment

Finding Common Threads in Regional Plans



Vibrant Communities – Robust Region

CONNECT Our Future
Vibrant Communities – Robust Region



The 14-county bi-state region includes: Anson, Cabarrus, Cleveland, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly and Union Counties in North Carolina, and Chester, Lancaster, Union and York Counties in South Carolina.

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As Metrolina's population is poised to double by 2050, sustainable regional planning and development are imperative. How we house, educate, employ, transport, and offer recreation to our residents will require collaboration, through which we can learn from each other how to best minimize our community's impact on air quality and our fragile climate. Mitigation is also key; by encouraging, if not requiring, the use of clean construction guidelines to reduce carbon emissions, we can help protect our residents' health and reduce our carbon footprint.

“CONNECT Our Future” is a process in which communities, counties, businesses, educators, non-profits and other organizations work together to grow jobs and the economy, improve quality of life and control the cost of government. This project will create a regional growth framework developed through extensive community engagement and built on what communities identify as existing conditions, future plans and needs, and potential strategies.

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Vibrant Communities – Robust Region

Introduction

The CONNECT Our Future region is one of the fastest growing regions in the country with a projected doubling of our population by 2050. This exponential growth will result in a significant increase in residential, commercial, transportation and infrastructure construction projects, impacting both our air quality and our changing climate. As the only region in North Carolina to elude federal clean air standards for ground-level ozone, it's crucial the public and private sectors work together on a proactive strategy that ensures our air quality is not further impaired by this tremendous increase in development.

CONNECT Our Future seeks to create a regional growth framework that builds on the needs and the plans that already exist. To determine planning and policymaking initiatives currently in place to improve air quality and mitigate climate change in the region, Clean Air Carolina conducted a Climate Change Planning Assessment. Comprehensive land use plans, bike/pedestrian plans, green building policies, climate action plans, sustainability goals, fleet policies and related tools being used by municipalities, businesses and educational institutions were collected for the purpose of determining:

1. Commonalities in existing plans that can be built upon as they relate to reducing air pollution and mitigating climate change; and
2. Opportunities that exist to encourage further reductions in air pollution, specifically, black carbon particle pollution generated from older diesel construction equipment.



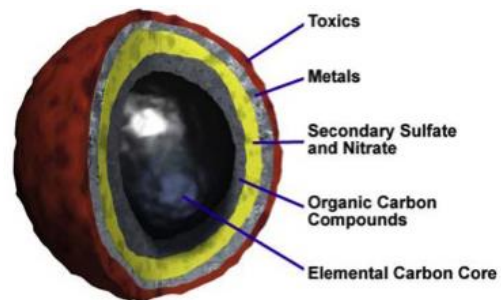
Clean construction guidelines address problems associated with harmful diesel exhaust.

Black Carbon: A Multi-dimensional Offender

Diesel exhaust from older construction equipment contains black carbon particles the Environmental Protection Agency (EPA) and United Nations' Environmental Programme identified as a short-term climate-forcing agent that should be targeted for reductions. Black carbon represents the second largest climate warmer after carbon dioxide. Unlike carbon dioxide, which remains in the atmosphere for more than 100 years after emission, black carbon lingers only for a few weeks and can be eliminated from the atmosphere if emissions are halted.

In addition to the impact of black carbon on climate, diesel exhaust is a known carcinogen, containing more than 40 air toxins, as well as nitrogen oxide, a precursor of ozone pollution. Fine particles in diesel exhaust enter the bloodstream and circulate throughout the body, causing inflammation and chronic illnesses (including stroke, heart attack, and asthma). Fine particles can also cross the blood-brain barrier causing neurological difficulties. These emissions compromise the health of construction workers, pedestrians, and others who live or work near construction sites.

Diesel Particle



Graphic Credit: Clean Air Task Force

Clean Construction: A Practical Solution

Municipalities, businesses and educational institutions in other parts of the United States use "clean construction" policies or guidelines to address the problems associated with black carbon from diesel exhaust. Contract specifications prioritizing the use of EPA Tier 4 level construction equipment, along with anti-idling measures, can significantly reduce black

carbon particle pollution at construction sites. Smart growth principles give precedence to prevention strategies that focus on healthier communities. Addressing the impacts of the construction process itself can lay the foundation for a healthy regional growth framework.

The Climate Change Planning Assessment allowed Clean Air Carolina to determine which entities in the region are potential candidates for adopting clean construction guidelines based on their existing policies and interest. It also provided an opportunity to inquire about construction projects planned for our region in the years ahead.

Planning Assessment Report

The final report for the Climate Change Planning Assessment includes the following deliverables:

- Database of regional contact information used during the assessment, including: planning directors, fleet managers, public works directors and sustainability managers;
- Database of policies, plans and related information collected from municipalities, educational institutions and businesses related to air quality and climate change currently in place;
- Summary spreadsheet of municipality survey results showing types of plans, policies, etc.;
- Select planned construction projects in the region; and
- Written report summarizing Clean Air Carolina's findings and recommendations.

(A Clean Construction Toolkit will be made available with additional information from ERG.)

Research and Interviews

The Climate Change Planning Assessment focused on three sectors: municipalities, educational institutions (K-12 school systems, colleges and universities), and businesses. While research and interviews were conducted in each sector, the primary goal was to assess work performed by the municipalities within the CONNECT region.

Toward that end, Clean Air Carolina contacted each municipality that was a member of CONNECT Our Future regarding the assessment via email.

The following information was included in the email:

- CONNECT Our Future flyer;
- Fact sheet on diesel exhaust and clean construction; and
- Survey of questions regarding their plans, policies, and goals that related to air pollution and climate change.

General information was collected on:

1. Existing environmental plans and policies in place or in development:
 - master and/or land use plans/ordinances
 - energy efficiency standards
 - idling restrictions
 - construction/renovation standards
 - purchasing/procurement policies
 - bike and/or pedestrian plans
 - greenway plans
2. Climate action plans
3. Fleet policies, including any information about:
 - fleet makeup (age, tier, and type)
 - fuel sources
 - fueling restrictions
 - turnover/purchasing requirements
 - maintenance and upgrades to fleets
4. Current or upcoming construction, expansion, demolition, and/or renovation projects

Mecklenburg Livable Communities Plan

The Charlotte City Council and the Mecklenburg County Board of Commissioners approved a joint sustainability strategy that establishes an overall vision for the community, connecting existing environmental initiatives and setting targets for new programs and goals. The joint strategy will work in collaboration with area nonprofits and other towns in the county. Working together on an integrated, goal-oriented sustainability plan is a great model for other municipalities seeking ways to have a more positive environmental impact.

Outreach to Municipalities

Clean Air Carolina sent emails to 47 municipalities with a goal of speaking to at least one representative from each of the 14 counties. Follow-up phone calls resulted in phone and in-person interviews with 32 individuals representing 26 municipalities. Clean Air Carolina also conducted additional research on city, town and county websites, ultimately collecting information from 45 local government entities.

As expected, the vast majority of the towns and counties (93%) had some form of comprehensive master/land use plan that addressed managing and directing growth and infrastructure, and enhancing quality of life. Often these plans stressed walkability, green space protection, transportation choices and other smart growth features. While air quality and climate change may not have been specifically addressed as priorities, the implementation of many of the planning strategies, when fully realized, will result in improved air quality and a healthier climate.



McAlpine Creek Park Greenway in Charlotte

Pathways to Healthier Living

The most important, but not surprising, finding of the survey was the strong support by municipalities throughout the region for creating a multi-modal transportation system within and between their communities. Depending on the municipality size, the support for such a system, including increased access to bike and pedestrian pathways, was either included in the comprehensive plan, or in stand-alone master bicycle plans, pedestrian plans, greenway plans, or joint variations.

Of the 45 municipalities researched, 82% had bicycle plans, 82% had pedestrian plans, and 84% had greenway plans. The Waxhaw 2030 Comprehensive Plan expresses this common theme in one of its strategic goals to:

“Create an interconnected network of sidewalks, bicycle paths, and greenways between neighborhoods, activity centers, parks, and other local destinations, as well as to future transit stops.”

Even in rural Lancaster County, SC, recognizing the need for supporting alternative transportation options is evident in this statement from its comprehensive plan:

“Promote intermodal transportation systems such as park and ride options, pedestrian ways, and bike ways.”

Two initiatives—one public and one private—have facilitated prioritization of “bike/ped” plans and greenways throughout the region. Since 2004, the NC Department of Transportation (NCDOT) Bicycle and Pedestrian Planning Grant Initiative has encouraged municipalities to develop comprehensive bicycle plans and pedestrian plans. This program, administered through NCDOT’s Division of Bicycle and Pedestrian Transportation (DBPT), has assisted more than 100 North Carolina communities.

As the newly published (January, 2013) Town of Wingate (Union County, NC) Comprehensive Pedestrian Plan notes:

“There are economic benefits, quality of life benefits, health benefits, environmental benefits and transportation benefits of a walkable community.”

Much of the credit for the development of Greenway Master Plans throughout the CONNECT region goes to the nonprofit, Carolina Thread Trail. The “Thread” is a regional network of greenways and trails that reaches 15 counties and 2.3 million people. Launched in 2007, this green interstate system currently has 117 miles of trails open to the public in North and South Carolina, with 14 active corridors under development. Within the CONNECT region, the “Thread” is working with municipalities in 13 out of 14 counties, with Union County, SC the exception.

While not stated directly, it is clear that municipalities are taking steps to get residents out of their cars to enjoy the natural resources and economic amenities our region has to offer. This trend calls for increased emphasis on strategies, like clean construction guidelines, which will help bring our region’s air quality into federal compliance and provide a healthier outdoor experience for all residents.

Air Quality Planning Highlights

Davidson, Mecklenburg County

While many communities are prioritizing sustainable planning strategies, two towns deserve special mention. The Town of Davidson in Mecklenburg County has made remarkable strides in incorporating sustainable design elements into their plans and policies

in the last decade. Davidson seeks to serve as a model for other small towns throughout the state and country.

Some of Davidson’s proactive initiatives include:

- Davidson Livability Council
- Davidson Greenprint: Natural Assets Inventory
- Davidson Design for Life

Davidson received a grant from the Centers for



Davidson has made great strides in sustainability. (Photo Credit: Town of Davidson)

Disease Prevention and Control (CDC) in 2011 to promote the use of health impact assessments (HIA) to foster healthy community design.

An HIA is a decision support tool, providing information to decision makers (commonly outside the health sector) regarding potential health impacts of a policy, plan, project or program before a decision is made.

HIAs have been completed for the following:

1. Davidson Street Design Standards Project
2. Red Line Commuter Rail Project
3. Pedestrian and Active Transportation Plan

HIAs in process include:

1. Park, Recreation and Public Spaces Plan
2. Food Systems Plan

In their recently proposed Davidson Walks and Rolls! Active Transportation Master Plan, presented to the Town Board on July 9, 2013, an outline of the current economic and air quality benefits of their existing bike/ped program was included. Air quality benefits, from reductions in annual vehicle miles traveled, CO₂ and other vehicle emissions, were shown along with the total monetized benefits of the bike/ped program of \$736,000. This emphasis on analyzing air quality and climate impacts, as well as the health impacts, allows elected officials and residents to think holistically about the implications of their policy actions. Davidson exemplifies a community likely to incorporate clean construction guidelines to reduce emissions from construction projects within the town limits. Indeed, in speaking with the Mayor and Town Manager, at a HIA conference recently, there was expressed interest.

Midland, Cabarrus County

The Town of Midland in Cabarrus County is another small town using a sustainable model for planning purposes. Newly incorporated in 2010, their policies encourage economic development, but not at the expense of human and environmental health.

Although they are located in a rural part of the county, town officials are clearly concerned about air quality as evidenced by several policies found in their 475-page Development Ordinance.

Of all the cities, towns, and counties interviewed, Midland was the only one with an electric vehicle charging station policy. Midland also discourages the use of drive-through businesses and encourages use of plug-in electric vehicles:

“Drive-through service windows and/or automated devices shall be mitigated by the provision of eight (8) electric vehicle charging devices per window and/or device to mitigate the air quality impact of a motor vehicle at idle.

Hotels and/or motels shall provide Plug-in Electric Vehicle (PEV) charging stations within designated parking spaces for a minimum of 8% of all guest rooms. Restaurants shall provide PEV charging stations within designated parking spaces for a minimum of 4% of the restaurant seating capacity....”

Midland’s innovative policies on PEV charging stations and drive-throughs demonstrate that air quality and climate change are indeed issues of concern for this small town of 3,000 people, situated on a major east-west thoroughfare between Charlotte and Albemarle. Because of this, Midland is a prime candidate for the use of clean construction guidelines. Plans are underway to construct a 20,000 SF new town hall. Clean Air Carolina found Midland’s town planner very interested in learning more about opportunities to reduce diesel pollution on this construction project.



Drawing plans for Midland's new town hall
(Image Credit: Town of Midland)

Clean Fleets Snapshot: Rock Hill, SC

Clean Air Carolina's report on municipalities would be incomplete without highlighting the work that the City of Rock Hill has done to improve its fleet. Rock Hill’s commitment to cleaner air began quietly within their Fleet Services Department under the leadership of Marty Burr, Fleet Services Director. The city’s fleet has undergone tremendous changes in the last two decades. About sixteen years ago, the entire fleet quietly changed over to B20 bio-diesel fuel. Today, the fleet has grown to 1,227 pieces of equipment, all of which are powered by B-20 fuel or compressed natural gas (CNG).

Other highlights of Rock Hill’s Clean Fleets Commitment:

- 16 PEV charging stations free for public use
- No-idle policy, which applies to all companies contracting with the city
- All city-owned vehicles are programmed to shut off after five minutes of idling
- Fleet Services facility provides B-20 and CNG tanks for public use
- Availability of CNG has resulted in a local car dealer converting cars to CNG

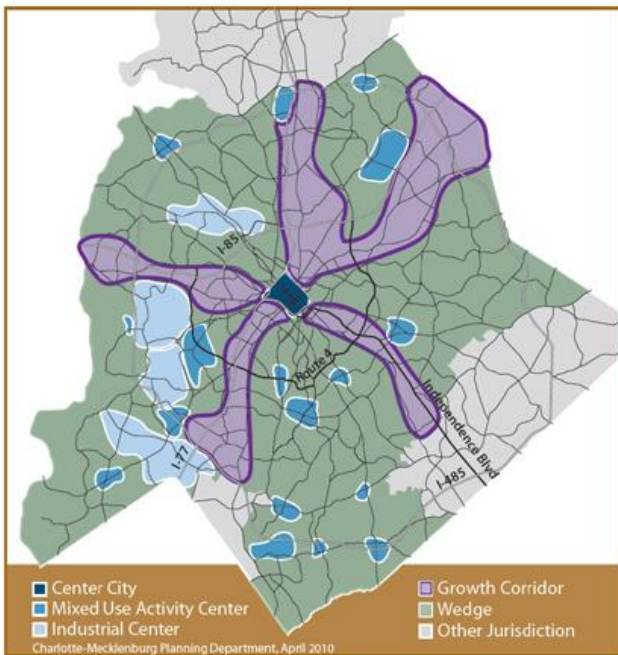
Next up for Rock Hill is a desire to convert more city vehicles, particularly garbage trucks, to CNG.

Charlotte, Mecklenburg County

The City of Charlotte and Mecklenburg County, as the two most populous municipalities in the region, have led the way in planning and policymaking to improve air quality and mitigate climate change. The Charlotte-Mecklenburg Planning Commission oversees planning for both municipalities and works with regional, state, and federal agencies to assure consistency among their plans, policies and programs.

A key framework for growth was adopted by the Charlotte City Council in 1994 and continues to be the city’s overarching policy for guiding growth and

development. Originally known as Centers and Corridors, the framework was updated in 2010 and is now referred to as the Centers, Corridors and Wedges Growth Framework. The original transit-oriented development focus now includes public facility needs and environmental concerns, and categorizes land into one of three categories: Activity Centers, Growth Corridors, or Wedges. This sustainable land use model is helping the city manage the enormous growth it has experienced during the last several decades.



Wedges Map

In an effort to determine their carbon footprint, Charlotte and Mecklenburg County conducted greenhouse gas (GHG) inventories for their operations in 2006. The City of Charlotte also conducted a baseline GHG emissions inventory for the community that same year. Both inventories were updated in 2009. To address the high percentage of GHG emissions originating from operation of city-owned buildings, Charlotte adopted a Sustainable City Facilities Policy in 2009; Mecklenburg County followed suit in 2010.

Sample of Key Air Quality and Climate Initiatives:

City of Charlotte

- 2005: Anti-Idling Policy
- 2007: GHG Emissions Reduction Resolution
Environment General Development Policy
- 2009: U.S. Mayors Climate Protection Agreement
Energy Efficiency & Conservation Block Grant
- 2010: Charlotte’s Energy Future Roadmap Report
Environmental Purchasing Policy
Fleet & Motorized Equipment Policy
Power2Charlotte Energy Campaign

Mecklenburg County

- 2005: Climate Protection Resolution
Idle Reduction Policy
- 2007: Energy Use Plan
Fleet Management Plan
1st Environmental Sustainability Plan Report
- 2009: Facility Indoor Air Temperature Policy
Greenhouse Gas Action Plan
- 2010: On-Road Low Emission Vehicle Policy
Environmentally Preferable Purchasing Guide



Charlotte's Power2Charlotte campaign offers electric vehicle plugin stations for residents in and around the city. (Photo Credit: City of Charlotte)

Final Thoughts on Municipalities

Other findings related to air quality and climate change in Clean Air Carolina's survey of towns, cities and counties include:

- Approximately 30% had anti-idling policies for municipal vehicles
- 22% were implementing some form of “green fleets” policy to improve fuel efficiency and reduce emissions
- 22% had a sustainability manager and/or committee working to promote smart growth policies and plans

In speaking with municipalities throughout the CONNECT region, Clean Air Carolina found significant interest in air pollution mitigation strategies and a strong majority of those interviewed expressed a desire to learn more about clean construction. Samples of draft clean construction contract specifications were sent to those surveyed, but a follow-up webinar on best practices for implementing clean construction guidelines would likely prove beneficial. Clean Air Carolina would be interested in developing such a webinar as part of the Clean Construction Toolkit.



Tier 4 Clean Construction Equipment



"No Idle" signs are installed at Charlotte-Mecklenburg Schools.

Outreach to Educational Institutions

Clean Air Carolina chose some of the larger school systems to interview as well as private colleges, community colleges and universities. Facilities managers, directors of capital projects, and planning professionals were contacted. Clean Air Carolina also relied on web research to glean additional information from institutions with whom no direct contact was made. Information from four school systems and seven institutions of higher learning was collected.

Public school systems

- Charlotte-Mecklenburg Schools
- Iredell-Statesville Schools
- Rowan-Salisbury Schools
- Union County (NC) Public Schools

Colleges and Universities

- Catawba College
- Central Piedmont Community College
- Davidson College
- Johnson C. Smith University
- Rowan-Cabarrus Community College
- The University of North Carolina at Charlotte
- Winthrop University

There was a broad continuum of climate-friendly actions in place on campuses throughout the region, based on both interest and budgets. While improving energy efficiency in buildings and transitioning to fuel efficient fleets saves money in the long run, the economic downturn thwarted the efforts of many schools to make such investments.

Climate Change Planning

Catawba College (Rowan County), Davidson College and UNC Charlotte (Mecklenburg County) are all signatories to the American College and University President's Climate Commitment (ACUPCC) and have climate action plans that prioritize mitigation strategies, such as:

- Increased use of electric vehicles in their fleets
- Increased number of LEED certified or equivalent buildings
- Upgrades to lighting and other heavy energy users on campus
- Connectivity to bike and pedestrian greenway systems

Catawba College's goal is to achieve carbon neutrality by 2030; the college promotes environmental sustainability through its Center for the Environment. The Center's Clean Air Campaign focuses on educating students and the public in Rowan and Cabarrus counties about air pollution's impact on health and the economy. It also promotes actions that reduce air pollution, such as the use of alternative fuels and modes of transportation, the preservation of green space, and energy conservation. According to the director of the Center for the Environment, the college has no construction plans in the near future but is interested in learning more about clean construction.

Davidson College recently hired a Sustainability Manager who oversees its Sustainable Scholars Program, and implementation of the college's climate action plan. Along with Davidson's new Environmental Studies Major, this program institutionalizes a commitment to sustainability and empowers students with the opportunity to take meaningful action. The cross-sector program placed scholars with partners including the City of Charlotte, Bank of America, Sustain Charlotte, Clean Air Carolina, Perkins + Will, Friendship Gardens, and Centralina Council of Governments.

UNC Charlotte's campus represents another opportunity to improve air quality and mitigate climate change on their expanding campus. The staff person charged with leading the implementation of

Clean Construction Opportunity

Davidson College will undergo major reconfiguration of its built environment with the infusion of an unprecedented gift of \$45 million from the Duke Endowment last fall. Davidson is now launching a 10-year project to make the college more competitive with online schools by re-creating the way it teaches liberal arts.

The work starts this year with construction of a four-story, 120,000 SF science building on a lot next to the current Martin Chemical Laboratory. That project will be followed by renovation of the 27,000 SF Martin building, built in 1941. In all, six buildings will be expanded, renovated or built from the ground up in the next decade, including: E.H. Little Library, Chambers Building, Baker-Watt Science Complex, Sloan Music Building, Martin Chemical Laboratory, and Preyer Building. Davidson's Facility Manager is well-informed about clean construction guidelines and has expressed interest in using them to mitigate air quality and climate impacts. It's possible Davidson College will lead the way on clean construction in the region.

UNC Charlotte's climate action plan is, unfortunately, no longer with the university; responsibility is now shared by several individuals. UNC Charlotte's goal, like Davidson's, is to achieve climate neutrality by 2050, with near term projects implemented by 2020. These projects focus on energy conservation, transportation, and high performance building development. With strong academic programs in civil and environmental engineering, infrastructure and environmental systems, architecture, and urban design, as well as emphasis on sustainable urban planning from UNCC's Urban Institute, the adoption of clean construction guidelines would fit well into UNCC's commitment to sustainability.

Unfortunately, the role of black carbon in climate change was not well-known when schools signed on to the ACUPCC. Reduction of CO₂ emissions, especially from electricity production, has been the primary mitigation strategy. For clean construction guidelines

to be incorporated into college climate action plans, more information on black carbon's role in climate change, and the use of CO₂ equivalents, is critical.

Highlights from other Educational Institutions

Central Piedmont Community College: The Center for Sustainability provides education and training; CPCC completed one water/energy performance contract and is starting a second; possibility of four to eight (4 - 8) medium to large construction projects over the next several years.

Johnson C. Smith University: Sustainability Village initiative includes academic coursework, service-learning activities and study abroad opportunities in Haiti, helping build energy efficient housing.

Rowan-Cabarrus Community College: Clean fleets initiative; \$13 million in new renovations in the pipeline; high level of interest in clean construction.

Winthrop University: Signatory of the Talloires Declaration and an institutional member of the Association for the Advancement of Sustainability in Higher Education; campus sustainability policy includes sustainable procurement policy, anti-idling policy and green cleaning procedures.

School Systems

For the four school systems Clean Air Carolina surveyed, with the exception of Charlotte-Mecklenburg Schools (CMS), sustainability initiatives focused primarily on energy efficiency. Rowan-Salisbury Schools has a dedicated Energy Manager working to reduce energy use and promotes the Energy Star Program. Union County (NC) Public Schools has one LEED certified school using geothermal energy. This school system (not unlike others) currently lacks funding for projects; with population growth, Union County expects to build a new elementary, middle and high school in four to five years.

Second largest school system in North Carolina, CMS has done the most to institutionalize environmental sustainability within their system. The Board of



Solar panels on Metro School in Charlotte (Photo Credit: CMS)

Education adopted an Education Environmental Stewardship Policy, and its 2014 strategic plan set goals to reduce system-wide utility consumption by 20%, solid wastes by 5%, and other pollutants by 20%. CMS is currently on track to achieve these goals. Also, within the 2014 strategic plan, CMS is charged with developing an environmental management system

modeled on the International Standards Organization (ISO) Standard 14001, "Environmental Management," to establish a systematic approach to controlling and improving the environmental impacts of CMS. It is the first school system to work with NC Department of Environment and Natural Resources toward this goal.

As an EPA Energy Star Partner since 2003, CMS has more Energy Star certified schools than any other school system in the state, and ranks fourth in the country as of 2012. CMS Energy Management staff regularly distributes to each school reports featuring energy consumption metrics. These reports are used to gauge school performance and may support academic efforts. CMS's Green Star School Program encourages individual schools to engage in sustainability efforts. CMS has an environmentally sustainable procurement guide and a strong recycling and waste reduction program.

Outreach to Businesses

Outreach to the business sector was limited due to time constraints. Clean Air Carolina interviewed sustainability directors at three major Charlotte-based corporations: Bank of America, Wells Fargo (east coast operations), and Duke Energy. Clean Air Carolina collected information about plans and goals related to air quality and climate change. Two

companies connected to the construction industry, Balfour Beatty and Neighboring Concepts, were also interviewed to determine how sustainability fit into their corporate goals, and whether or not they were aware of the use of clean construction guidelines to mitigate black carbon from diesel exhaust. Clean Air Carolina also researched the websites of Lane Construction and Compass Group, two companies with large operations in Charlotte. These corporations were studied in order to understand some strategies businesses are currently using to address air pollution and climate change, and to determine what could be learned from their leadership.

Corporate Sustainability Highlights

For global corporations like Wells Fargo and Bank of America, keeping track of their carbon footprint is a complicated exercise but one that is an increasingly important aspect of standard business practice. In addition to annual sustainability reports that provide customers and the public an overview of their goals and accomplishments, large companies (as well as some cities) are often affiliated with ‘neutral’ organizations charged with helping them measure their environmental impact.

Carbon Disclosure Project: Bank of America and Wells Fargo are both signatories of the Carbon Disclosure Project, an international, nonprofit organization that provides the only global system for companies and cities to measure, disclose, manage and share climate change risk management practices. Questionnaires are completed for greenhouse gas emissions, water usage, and forest-risk activities. Both banks track carbon emissions, water and waste related to operations. As financial institutions they have also made significant lending and charitable contribution commitments to help with the transition to a low-carbon economy.

Wells Fargo and Bank of America include their environmental sustainability information in their annual Social Responsibility Reports. Both banks prioritize LEED certified building space. Bank of America has an operation goal of having 20% of their

building space LEED certified by 2015. They currently are at roughly 15%. Wells Fargo also encourages LEED construction. In 2011, Wells started requiring all new construction meet LEED standards, including branch build-outs in shopping centers. Wells Fargo is the nation's largest financier of LEED construction.

While both banks prioritize use of the LEED rating system, new bank construction is down. As more consumer banking operations go online, changes are being made to the branch banking model. But as new construction decreases, and banks get a handle on their internal operations, the stage is set for banks to work on what the World Resources Institute refers to as the GHG Protocol Scope 3 Standard. This protocol requires organizations to view their carbon footprint through the lens of their supply chain, where big carbon reductions will occur. Companies can build accountability into contracts. While construction has declined for new banking facilities, construction lending has not. If clean construction guidelines are written into loan documents, lenders can have a major impact on reducing black carbon emissions.

Constructing a Healthier Future

Balfour Beatty, a United Kingdom-based corporation with offices worldwide, including one in Charlotte, is committed to sustainability within their operations and beyond. Their 2013-2015 Roadmap sets 2015 goals for a sustainable company and a sustainable world. One of their goals for 2015 is a 10% reduction in Scope 3 emissions where they have an influence, e.g., embodied carbon or in-use emissions.

Balfour Beatty also subscribes to a Zero Harm policy to protect the health of its employees and the communities in which they operate from exposure to hazards. Both their commitment to reducing Scope 3 emissions and their pledge of Zero Harm make Balfour Beatty a likely candidate to implement clean construction guidelines.



Several leading construction companies are committed to environmental sustainability in their operations.

Turner Construction Company, based in Atlanta with a Charlotte regional presence, also strives to have a positive impact on its supply chain emissions. A member of the Carbon Disclosure Project, one of their key goals is to reduce its Scope 3 emissions from jobsite operations. Incorporating clean construction guidelines into Turner's projects represents an ideal way to further reduce their carbon footprint.

Finally, **Lane Construction Company**, a national builder of infrastructure, also has a commitment to environmental stewardship. Tenets of their environmental policy include:

- Continually improving environmental performance and preventing pollution by using industry best practices;
- Evaluating our operations and activities to establish and pursue objectives and targets to minimize environmental impacts to the air, land and water; and
- Reducing emissions associated with climate change.

Like Charlotte-Mecklenburg Schools, Lane developed an Environmental Management System based on the ISO 14001. This allows them to use the “Plan-Do-Check-Act” model for environmental management. Lane strives to go above and beyond environmental compliance, which makes them another good candidate for the use of clean construction guidelines.

Additional Corporate Initiatives

Compass Group, the world's largest contract foodservice company with operations in more than 50 countries, has its North American headquarters in Charlotte. This British-based corporation's first guiding principle pledges to “manage responsibly the impact that our business has on the environment.” Compass Group encourages responsible, sustainable practices within their supply chain, and leads the foodservice industry with groundbreaking policies, such as reducing the use of antibiotics in chicken, turkey and pork, and committing to healthier oceans with sustainable seafood purchasing policies.

Compass Group's environmental policy clearly outlines actions it takes to protect air quality and mitigate climate change including reduction of CO₂ emissions in its fleet vehicles, and reducing water and energy use in their principal offices. Like other large corporations who have spent years making their internal operations more sustainable, Compass Group also expects high standards of environmental protection from their suppliers and contractors.



Compass Group supports sustainable agriculture

Duke Energy, the country's largest electric utility provider with seven million customers in six states and international power generation businesses, has a major impact on the environment. The company has set goals for their environmental performance metrics in categories such as CO₂ emissions from generating units, vehicle fleet emissions, and electricity consumed at 13 of their largest buildings.

Duke Energy made a commitment at the 2009 Clinton Global Initiative to convert its vehicle fleet to 100% electric vehicles by 2020, which will further reduce the direct emissions from those cars and trucks. Duke's 2012 goal was to reduce emissions from on-road and off-road vehicles by 35% compared to 2006. During that period emissions were reduced by 41%.

Duke's Sustainability Corps encourages employees to find ways to influence the triple bottom line within the company. Their anti-idling policy was proposed to reduce emissions and save fuel costs. The Smart Building Advantage program addresses energy management for new buildings or retrofitted spaces, and uses incentives to reduce energy use.

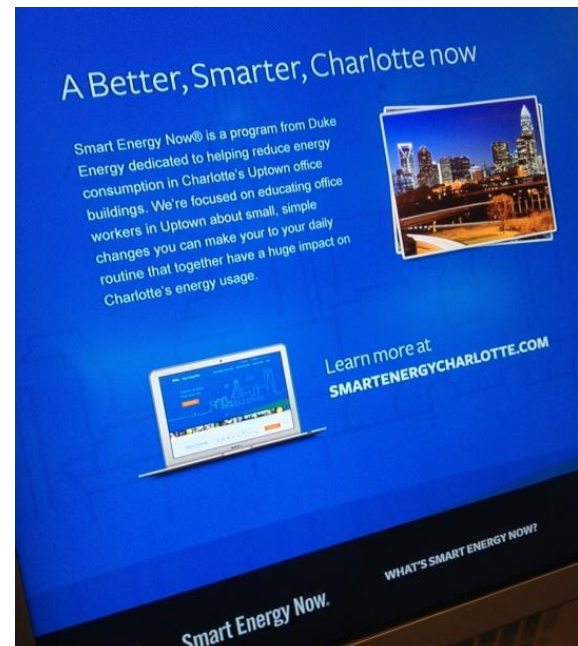
Perhaps Duke's most innovative program in the Charlotte region is their Smart Energy Now program, implemented through Envision Charlotte, a program designed by Charlotte's Center City Partners to help make uptown Charlotte the most environmentally and economically sustainable urban core in the country.

Smart Energy Now uses a digital smart-grid infrastructure to track the energy use of 60 buildings in uptown Charlotte. Real-time digital display monitors are placed in the lobbies of participating buildings to educate office workers and building managers about simple changes they can make in their daily routine that will collectively add up to big energy savings. Smart Energy Now, created in 2010, hopes to reduce energy use by 20% within five years.

While Duke Energy is involved in sustainability initiatives like Envision Charlotte, the opportunities for clean construction are minimal. With a rapidly changing energy landscape and the success of energy efficiency programs, there are no plans for construction in the CONNECT region.

Moving Forward

As our population grows, it will be important to prioritize air quality issues that represent "low-hanging fruit" and do not require massive amounts of public funding to solve. Reducing black carbon from construction equipment is one of those issues.



Duke Energy's Smart Energy Now program tracks the energy use of 60 buildings in uptown Charlotte.

The Climate Change Planning Assessment was an opportunity to take a "reality check" on what various sectors in the CONNECT region—municipalities, educational institutions, and businesses—are doing to address the key issues of air quality and climate change through planning and policymaking processes. Clean Air Carolina found strong interest throughout the region from some of the smallest towns to the largest county for developing communities that as the town planner for Midland said are "pro-business, pro-people and pro-environment."

Most municipalities seem to be moving toward the development and implementation of policies and plans that will result in healthier communities in the broadest sense. Even though they are at various stages along the sustainability continuum, there's a clear trend toward protecting the environment while improving the quality of life for the region's residents. We are fortunate to have the town of Davidson in our region using a ground-breaking initiative, Davidson Design for Life, which incorporates public health into their policymaking through the use of health impact assessments. They are at the forefront of promoting "healthy community design," making it easier for people to live healthy lives. This kind of planning

results in less air pollution and a positive impact on our fragile climate system.

Finding alternative ways for people to move around is a top priority for all three sectors with an overwhelming emphasis on greenways, bikeways and pedestrian-friendly town centers. Conserving natural resources in the construction and operation of buildings was also a priority, especially for the larger municipalities, schools and businesses. There was strong commitment to cleaner air across the sectors with the wide use of idle-reduction policies. All three of these trends will benefit air quality in the region.

For those entities moving to the next level of reducing carbon pollution through their supply chains and “outside the box” of their buildings’ perimeters, the appeal of clean construction is gaining interest. It is not just about what LEED certification level the new town hall receives once completed. There is a growing awareness of addressing the carbon pollution created during the building process. During the assessment Clean Air Carolina was very pleased to find a great deal of interest across sectors with 81% of entities showing a range of fairly interested to very interested in receiving more information on clean construction guidelines.

In the Carbon Disclosure Project’s 2013 Report, “Wealthier, Healthier Cities: How Climate Change Action is Giving Us Wealthier, Healthier Cities,” broad evidence is provided from cities around the world, which affirms the co-benefits of taking action on climate change. The result is cleaner air, healthier residents, and stronger economies.

Clean Air Carolina’s findings show the CONNECT region is ready to take advantage of new opportunities to reduce carbon emissions, improve air quality, and grow a healthier future for all residents. It’s clear the region is moving in the right direction. The challenge is to learn from each other, share best practices, and build on common goals for a truly sustainable region.

CONNECT Our Future
Vibrant Communities – Robust Region

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The logo features a green and yellow stylized tree icon above the word "CONNECT" in bold green capital letters, with "Our Future" in a blue script font below it.

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